

CLAIMS

1. A method of operating a fuel cell, comprising the steps of:
 - 5 activating a membrane electrode assembly by supplying reactants to the membrane electrode assembly; and
 - selectively limiting amount of electrons collected from localized areas of the membrane electrode assembly surface.
- 10 2. The method of claim 1, wherein the step of selectively limiting comprises the step of utilizing a porous, Z-axis electrically conductive, non-linear positive temperature coefficient material located together with the membrane electrode assembly to selectively limit the amount of electrons collected from localized areas of the membrane electrode assembly.
- 15 3. The method of claim 2, wherein the step of utilizing further comprises the step of disposing a porous, Z-axis electrically conductive, non-linear positive temperature coefficient material on and in intimate contact with at least one of the sides of the membrane electrode assembly.
- 20 4. The method of claim 2, wherein the Z-axis electrical resistivity at localized areas of the non-linear positive temperature coefficient material changes from a first value to a second value in response to a trigger condition at areas of the membrane electrode assembly adjacent to the localized areas of the non-linear positive temperature coefficient material.
- 25 5. The method of claim 4, wherein the trigger condition is created in response to a combination of one or more elements selected from the group consisting of temperature, pH, hydrogen concentration, electrolyte water content, electrolyte thickness, electrolyte ionic conductivity and electrolyte electronic conductivity of the membrane electrode assembly adjacent to the non-linear positive temperature coefficient material layer, crossing a threshold value.